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PECKMAN, EXAMINER

ART UNIT	PAPER NUMBER
2102	23

DATE MAILED: 09/09/94

This is a communication from the examiner in charge of your application.  
COMMISSIONER OF PATENTS AND TRADEMARKS

- ☐ This application has been examined ☒ Responsive to communication filed on 5-24-94 ☐ This action is made final.

A shortened statutory period for response to this action is set to expire \_\_\_\_\_ month(s), \_\_\_\_\_ days from the date of this letter.  
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- |   |   |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited by Examiner, PTO-892.        | 2. <input type="checkbox"/> Notice of Draftsman's Patent Drawing Review, PTO-948. |
| 3. <input checked="" type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449.  | 4. <input type="checkbox"/> Notice of Informal Patent Application, PTO-152.       |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474. | 6. <input type="checkbox"/> _____   |

Part II SUMMARY OF ACTION

1. ☒ Claims 1-92 \_\_\_\_\_ are pending in the application.  
Of the above, claims \_\_\_\_\_ are withdrawn from consideration.
2. ☐ Claims \_\_\_\_\_ have been cancelled.
3. ☒ Claims 1-81 \_\_\_\_\_ are allowed.
4. ☒ Claims 82-92 \_\_\_\_\_ are rejected.
5. ☐ Claims \_\_\_\_\_ are objected to.
6. ☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on \_\_\_\_\_. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on \_\_\_\_\_, has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed \_\_\_\_\_, has been ☐ approved; ☐ disapproved (see explanation).
12. ☐ Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. \_\_\_\_\_; filed on \_\_\_\_\_.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

*Specification*

1. The following is a quotation of the first paragraph of 35 U.S.C. § 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification is objected to under 35 U.S.C. § 112, first paragraph, as the specification, as originally filed does not provide support for the invention as is now claimed.

*Claim Rejections - 35 USC § 112*

2. Claim 83 is rejected under 35 U.S.C. § 112, first paragraph, for the reasons set forth in the objection to the specification.
3. Claims 86-88 and 90-92 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 86-88 and 90-92, both a compensation terminal and a shutdown terminal are claimed. However, the specification and drawings disclose that they are the same terminal. One of the functions of the compensation terminal is to act as a shutdown terminal. Two claim limitations can not refer to the same element.

*Claim Rejections - 35 USC 251*

Claims 86-92 are rejected under 35 U.S.C. 251 as being broadened in a reissue application and these particular claims were not filed until almost five years after the patent was issued. The applicant met the two year requirement in filing broadened claims 82-85. The applicant admits in the supplemental declaration that the errors that arose causing claims 86-92 to be added to the application were not discovered until February or March of 1994.

*Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --  
(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. Claim 89 is rejected under 35 U.S.C. § 102(a) as being anticipated by UC3842 reference.

The UC3842 reference discloses the invention essentially as claimed in claim 89 including including an input terminal - 7, a ground terminal - 5, an output terminal - 6, a feedback terminal - 2, a compensation terminal - 1, a power switching transistor - transistor of fig. 1, a circuit for varying the on and off duty cycle of the transistor - PWM latch, a circuit including a resistive element - Rsense, a circuit for generating an error

signal - error amplifier, a circuit for comparing the current sense signal to the error signal - current sense comparator and said comparing circuit being responsive to control signals applied to the compensation terminal for limiting peak current and variably limiting current conducted by the switching transistor - Pg. 73 and Fig. 4.

*Claim Rejections - 35 USC § 103*

6. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

7. Claims 86-88 and 90-92 are rejected under 35 U.S.C. § 103 as being unpatentable over UC3842 as applied to claim 89 above, and further in view of the Texas Instruments reference (Types RC4193M, RC4193I and RC4193C micropower switching regulators) and the Texas Instruments reference (Type TL496C 9-Volt Power-Supply Controller).

Claims 86, 87, 90 and 91 additionally recite a shutdown state. The UC3842 reference however does not disclose a shutdown state of the regulator. The Texas Instruments Reference for Types RC4193M, RC4193I and RC4193C micropower switching regulators discloses on page 2-63 the RC4913 will shut off when pin 6 is below .5 volt and that this is used to shut down the regulator whenever the battery voltage drops. The TL496C reference discloses allowing minimal supply current drain during stand-by operation. It would have been obvious to one of ordinary skill in the art at the time of the invention to add a shutdown state to the UC3842 switching regulator since the inventor of the UC3842 would have been drawn to the beneficial feature of eliminating power-up sequencing problems taught by the references.

Claims 88 and 92 additionally recite a bipolar transistor. This feature is shown in Fig. 1 of the UC3842 reference.

8. Claims 82-85 are rejected under 35 U.S.C. § 103 as being unpatentable over UC3842 reference in view of LSH6335P reference, LSH6355P reference, Moreau and Mashino.

The UC3842 reference discloses in Figs. 1 and 4 the invention essentially as claimed in claim 82 including an input terminal - 7, a ground terminal - 5, an output terminal - 6, a feedback terminal - 2, a compensation terminal - 1, a power switching transistor - transistor of fig. 1, a circuit for varying the on and off duty cycle of the transistor - PWM latch,

a circuit including a resistive element - Rsense, a circuit for generating an error signal - error amplifier and a circuit for comparing the current sense signal to the error signal - current sense comparator. The UC3842 reference does not disclose at most five terminals. It would have been obvious to one of ordinary skill in the art at the time of the invention delete the five volt reference terminal and make both the setting of the time constant and the current sensing so that the time constant terminal and the current sense terminal are no longer necessary since it is known in the switching regulator art to include functions internally to reduce the number of terminals to five as taught by LSH 6335P, LSH 6355P and Moreau. Further, Mashino discloses a beneficial feature in that reducing the number of terminals can simplify the production steps and the cost of production can be reduced.

Claims 83 and 85 additionally recite that the control signal is generated when the current sense signal equals or exceeds the error signal, respectively. The UC3842 reference discloses this feature on page 71.

Claim 84 additionally recites means responsive to control signals applied to the compensation terminal - pg. 73.

*Allowable Subject Matter*

9. Claims 1-81 are allowable over the prior art of record.

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